03-08-05

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PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of:	Barney J. Auman
Serial No.:	09/895,611
Filed:	06/29/2001
For:	Machine for Manufacturing a Capital for an Architectural Column
Confirmation No.:	6803
Group Art Unit:	1722
Examiner:	James P. Mackey
Attorney Docket No.:	PAUMAB-CM

Mail Stop Appeal Brief-Patents
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

TRANSMITTAL OF APPEAL BRIEF (PATENT APPLICATION–37 CFR 41.37)

1. Transmitted herewith is the APPEAL BRIEF in this application with respect to the Notice of Appeal filed on September 7, 2004.

2. STATUS OF APPLICANT

This application is on behalf of a small entity.

The statement of small entity status has already been filed.

3. FEE FOR FILING APPEAL BRIEF

Pursuant to 37 CFR 41.20(b)(2) the fee for filing the Appeal Brief is $250.00.

Appeal Brief fee due $250.00.

4. EXTENSION OF TERM

The proceedings herein are for a patent application, and the provisions of 37 CFR 1.136 apply.

Applicant petitions for an extension of time under 37 CFR 1.136 (fees: 37 CFR 1.17(a)(1)-(5)) for a total of four months. The requisite fee for a small entity is $795.00.

Fee $795.00

5. TOTAL FEE DUE

The total fee due is

Appeal brief fee	$250.00
Extension fee	$795.00
TOTAL FEE DUE	$1,045.00

6. Attached is a check in the sum of $1,045.00.

DATED this 7th day of March, 2005.

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EXPRESS MAIL CERTIFICATE

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Date of Deposit: March 7, 2005

I hereby certify that the following attached

Transmittal of Appeal Brief

is being deposited with the United States Postal Service "Express Mail Post Office to Addressee" service under 37 CFR 1.10 on the date indicated above and is addressed to Mail Stop Appeal Brief-Patents, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

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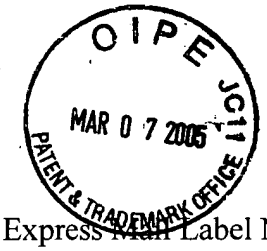

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APPELLANT'S BRIEF (37 CFR 41.37)

This brief is in furtherance of the Notice of Appeal filed in this case on September 7, 2004.

The fees required under § 41.20 and any required petition for extension of time for filing this brief and fees therefor are dealt with in the accompanying TRANSMITTAL OF APPEAL BRIEF.

03/09/2005 HALI11 00000046 09895611

01 FC:2402 250.00 OP
02 FC:2254 795.00 OP

This brief contains the following items, under headings of the same name and in the order given:

REAL PARTY IN INTEREST
RELATED APPEALS AND INTERFERENCES
STATUS OF CLAIMS
STATUS OF AMENDMENTS
SUMMARY OF CLAIMED SUBJECT MATTER
GROUNDS OF REJECTION TO BE REVIEWED ON APPEAL
ARGUMENT
    Claims 3, 4, 6, and 7
        35 U.S.C. § 102
        35 U.S.C. § 103
CLAIMS APPENDIX

The final page of this brief bears the attorney's signature.

REAL PARTY IN INTEREST

The real party in interest is Barney J. Auman.

RELATED APPEALS AND INTERFERENCES

There are no other appeals or interferences known to Appellants or Appellants' legal representative which will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

STATUS OF CLAIMS

Claims 1 and 2 have been canceled.

Claims 3 and 4 have been rejected.

Claim 5 has been canceled.

Claims 6 and 7 have been rejected.

Claim 8 has been canceled.

The claims being appealed are claims 3, 4, 6, and 7.

STATUS OF AMENDMENTS

No amendment has filed subsequent to final rejection.

SUMMARY OF CLAIMED SUBJECT MATTER

The subject matter of both the independent claims, *i.e.*, claims 3 and 6 is summarized in lines 2 through 5 on page 5 and in line 29 on page 5 through line 12 on page 8 of the Application as originally filed:

> To a capital mold **1** is attached a first portion of a connector, preferably a pipe attachment, **3** for releasably connecting the mold to a shaft **2** of a Machine. Attachment of the pipe attachment **3** can be by any means that is well known in the art, such as, but not necessarily limited to, screws or bolts and nuts, as depicted in Figure 1.
>
> . . .
>
> Once the mold(s) **1** and/or weights are securely attached to the Machine (Figures 2-7) upon the shafts **2** the Machine (Figures 2-7) is then started. The rotation of the capital mold **1** upon the machine (Figures 2-7) is provided by any number of possible arrangements of machinery which may be composed of, but not limited to: motors, belts, chains, levers, gears, transmissions, and differentials. Figures 2-7 show three examples different Machine designs that can be used. The critical feature is that the Machine rotate the mold **1** about multiple axes, preferably two and preferably substantially orthogonal axes.
>
> A description of the components and the functions of these components for the three exemplary Machines, which produce the desired result (i.e., rotation of the mold **1** upon two axes), follows. In each of the drawings for these examples the belts and/or chains (whichever is preferred) which attach one pulley to another have not been drawn in order to allow a clear view of the other components of each machine. It will be assumed that they are there and do exist, though not drawn, for it is by these belts and/or chains which energy is transferred from one point to another in the machine system.
>
> Figure 2 and figure 3 show the same Machine **7** at different angles, this Machine **7** being one of the possibilities to achieve rotation upon two axes. In this Machine **7** the pulley **8** of a motor **9** is used to turn the pulley **10** of a differential **11** which in turn rotates another pulley **12** of that differential **11**. That pulley **12** of the differential **11** then rotates a different pulley **13** which is attached and fixed rigidly to a bar **14**. This bar **14** then rotates precisely with the rotation of this pulley **13**. Upon another part of the bar **14** is also rigidly fixed a lever arm **15**. As

the bar **14** rotates, the lever arm **15** rotates precisely with it. At another point upon this lever arm **15** is freely attached second lever arm **16** allowing the second lever arm **16** to rotate freely about a pin **17** which attaches it to the first lever arm **15**, and upon a plane parallel to the first lever arm **15**. At another place on this second lever arm **16** is freely attached a second pin **18** which is rigidly attached to a table **19**. This table **19** is supported by two bars **20**. Through these bars **20**, and through the center of the table **19**, passes a third pin **21**, allowing the table **19** to freely rotate about this pin **21**. Hence as the pulley **13** attached to the bar **14** is rotated, and in turn rotates both the first lever **15** arm and the second lever arm **16**, the table **19** is rotated, or pivoted, about the third pin **21**. This is due to the second pin **18** which attaches the second lever arm **16** to the table **19**. This angular motion, the table **19** pivoting about the third pin **21**, gives the mold **1** attached to the shaft **2** rotation about the pitch axis. To obtain rotation about a second axis a second motor **22** is placed upon the table **19** which rotates the bar ends **2** orthogonally to the pivoting motion of the table **19** about the third pin **21**, *i.e.*, about the roll axis. The angular velocity of the rotation of the ends of the shaft **2** is controlled and can be changed by a transmission **23** mounted also upon the table **19**. The angular velocity of the rotation of the table **19** about the third pin **21** is controlled by the speed of the first motor **9**. This is desirable since adjustments of the velocities of rotation about the axis is preferred.

In Figure 4 and Figure 5 a second Machine **24** design possibility is presented. Here, the pulley **8** of a motor **9** turns the pulley **10** of a differential **11** which in turn rotates another pulley **12** of the differential **11**. The rotation of the second pulley **12** of the differential **11** rotates a lever arm **15**. This lever arm **15** in turn rotates a second lever arm **16** as it is freely attached to that second lever arm **16** by a pin **17** (as previously described with the first machine **7** design possibility above). As it is attached to a table **19** by a second pin **18** (as previously described with the first machine **7** design possibility above) the movement of the second lever arm **16** causes the table **19** to pivot about a third pin **21**. This third pin **21** passes through both two supporting bars **20** and the table **19** (as previously described with the first machine **7** design possibility above). This allows for rotation about the pitch axis. For the rotation about a second axis, the pulley **25** of a second motor **26**, which can, but not necessarily is, fixed on top of a differential **27** which is fixed to the table **19**, turns the pulley **28** of the differential **27**. The differential **27** then rotates the shaft **2** upon which are the molds **1** in the roll axis. The velocities of the rotations about the different axes are controlled by the speed of the first motor **9** and the second motor **26**, respectively. The speeds of the first motor **9** and the second motor **26** can be controlled by a control box **29**.

Figure 6 and Figure 7 represent yet a third possibility of a machine **30** used to rotate the capital molds **1** about two axes. In these figures the pulley **8** of a motor **9** turns the pulley **10** of a differential **11** which in turn rotates another pulley **12** of the differential **11**. The rotation of the second pulley **12** of the

differential **11** rotates a lever arm **15**. This lever arm **15** in turn rotates a second lever arm **16** since it is freely attached to that second lever arm **16** by a pin **17** (as previously described with the first machine **7** design possibility above). Since it is attached to a table **19** by a second pin **18** (as previously described with the first machine **7** design possibility above), the movement of the second lever arm **16** causes the table **19** to pivot about a third pin **21**. This third pin **21** passes through both two supporting bars **20** and the table **19** (as previously described with the first machine **7** design possibility above). This allows for rotation about the pitch axis. For rotation about a second axis the pulley **31** of a second motor **32** mounted preferably, but not necessarily, to the underneath of the table **19** rotates a pulley **33** through which passes the shaft **2**. The rotation of this pulley **33** rotates the shaft **2** in the roll axis. The velocities of the rotations about the different axes are controlled by the speed of the first motor **9** and the second motor **32**, respectively. The speeds of the first motor **9** and the second motor **32** can be controlled by a control box **29**.

Rotation about a third substantially orthogonal (to both the first axis and the second axis) axis, the yaw axis in the preceding examples, could be accomplish simply by attaching a motor that provides rotary motion to the supporting bars **20**.

The pitch, roll, and yaw axes are used herein to denote the same axes are they signify in the case of airplanes.

The subject matter of claim 3 is further explained in lines 20 through 28 on page 5 of the Application as originally filed:

In order to put less stress upon the machine (Figures 2-7) and its components, it is preferred that the shaft extend substantially symmetrically about the point for which rotation will occur for the pitch axis, *i.e.*, the fulcrum about which rotation will occur in the pitch axis, so that a mold **1** can be attached near both ends of the shaft and that the weight upon both ends of the shaft **2** will be approximately balanced (It is preferred but not necessary that molds **1** of approximately equal weight are placed upon both shafts **2** and that the capitals for these respective molds **1** are made during the same period of time. If this is not desired, another plausible solution would be to attach weights, whose sum is approximately equal to the weight of the mold **1**, on the shaft **2** opposite that of the mold **1**.).

For all the claims in question, *i.e.*, claims 3, 4, 6, and 7, there is a means for rotating the shaft about a first axis, a means for rotating the shaft about a second axis, and a means for rotating the shaft about a third axis.

A given means for rotating about a particular axis is composed of the same elements.

There are, however, three different embodiment disclosed. The first embodiment is that portrayed in Figures 2 and 3; the second embodiment, that shown in Figures 4 and 5; and the third embodiment, that illustrated in Figures 6 and 7.

The means for rotating the shaft about the first axis is, for the first embodiment, described in lines 13 through 29 on page 6 of the Application as originally filed:

> Figure 2 and figure 3 show the same Machine **7** at different angles, this Machine **7** being one of the possibilities to achieve rotation upon two axes. In this Machine **7** the pulley **8** of a motor **9** is used to turn the pulley **10** of a differential **11** which in turn rotates another pulley **12** of that differential **11**. That pulley **12** of the differential **11** then rotates a different pulley **13** which is attached and fixed rigidly to a bar **14**. This bar **14** then rotates precisely with the rotation of this pulley **13**. Upon another part of the bar **14** is also rigidly fixed a lever arm **15**. As the bar **14** rotates, the lever arm **15** rotates precisely with it. At another point upon this lever arm **15** is freely attached second lever arm **16** allowing the second lever arm **16** to rotate freely about a pin **17** which attaches it to the first lever arm **15**, and upon a plane parallel to the first lever arm **15**. At another place on this second lever arm **16** is freely attached a second pin **18** which is rigidly attached to a table **19**. This table **19** is supported by two bars **20**. Through these bars **20**, and through the center of the table **19**, passes a third pin **21**, allowing the table **19** to freely rotate about this pin **21**. Hence as the pulley **13** attached to the bar **14** is rotated, and in turn rotates both the first lever **15** arm and the second lever arm **16**, the table **19** is rotated, or pivoted, about the third pin **21**. This is due to the second pin **18** which attaches the second lever arm **16** to the table **19**. This angular motion, the table **19** pivoting about the third pin **21**, gives the mold **1** attached to the shaft **2** rotation about the pitch axis. . . .

The means for rotating the shaft about the first axis is, for the second embodiment, described in lines 6 through 15 on page 7 of the Application as originally filed:

> In Figure 4 and Figure 5 a second Machine **24** design possibility is presented. Here, the pulley **8** of a motor **9** turns the pulley **10** of a differential **11** which in turn rotates another pulley **12** of the differential **11**. The rotation of the second pulley **12** of the differential **11** rotates a lever arm **15**. This lever arm **15** in turn rotates a second lever arm **16** as it is freely attached to that second lever arm **16** by a pin **17** (as previously described with the first machine **7** design possibility above). As it is attached to a table **19** by a second pin **18** (as previously described with the first machine **7** design possibility above) the

movement of the second lever arm **16** causes the table **19** to pivot about a third pin **21**. This third pin **21** passes through both two supporting bars **20** and the table **19** (as previously described with the first machine **7** design possibility above). This allows for rotation about the pitch axis. . . .

And the means for rotating the shaft about the first axis is, for the third embodiment, described in lines 22 on page 7 through 2 on page 8 of the Application as originally filed:

> Figure 6 and Figure 7 represent yet a third possibility of a machine **30** used to rotate the capital molds **1** about two axes. In these figures the pulley **8** of a motor **9** turns the pulley **10** of a differential **11** which in turn rotates another pulley **12** of the differential **11**. The rotation of the second pulley **12** of the differential **11** rotates a lever arm **15**. This lever arm **15** in turn rotates a second lever arm **16** since it is freely attached to that second lever arm **16** by a pin **17** (as previously described with the first machine **7** design possibility above). Since it is attached to a table **19** by a second pin **18** (as previously described with the first machine **7** design possibility above), the movement of the second lever arm **16** causes the table **19** to pivot about a third pin **21**. This third pin **21** passes through both two supporting bars **20** and the table **19** (as previously described with the first machine **7** design possibility above). This allows for rotation about the pitch axis. . . .

The means for rotating the shaft about the second axis is, for the first embodiment, described in lines 29 of page 6 through 1 on page 7 of the Application as originally filed:

> . . . To obtain rotation about a second axis a second motor **22** is placed upon the table **19** which rotates the bar ends **2** orthogonally to the pivoting motion of the table **19** about the third pin **21**, *i.e.*, about the roll axis. . . .

The means for rotating the shaft about the second axis is, for the second embodiment, described in lines 15 through 18 on page 7 of the Application as originally filed:

> . . . For the rotation about a second axis, the pulley **25** of a second motor **26**, which can, but not necessarily is, fixed on top of a differential **27** which is fixed to the table **19**, turns the pulley **28** of the differential **27**. The differential **27** then rotates the shaft **2** upon which are the molds **1** in the roll axis. . . .

And the means for rotating the shaft about the second axis is, for the third embodiment, described in lines 2 through 4 on page 8 of the Application as originally filed:

> . . . For rotation about a second axis the pulley **31** of a second motor **32** mounted preferably, but not necessarily, to the underneath of the table **19** rotates a pulley **33** through which passes the shaft **2**. The rotation of this pulley **33** rotates the shaft **2** in the roll axis. . . .

Finally, the means for rotating the shaft about a third axis is, for all embodiments, described in the replacement paragraph, introduced in the Amendment dated January 7, 2004, to begin on line 8 of page 8:

> Rotation about a third substantially orthogonal (to both the first axis and the second axis) axis, the yaw axis in the preceding examples, could be accomplished simply by attaching to table **19** a motor that provides rotary motion to the supports which hold the shaft **2** to table **19**~~supporting bars **20**~~.

GROUNDS OF REJECTION TO BE REVIEWED ON APPEAL

The Examiner has rejected claims 3, 4, 6, and 7 under 35 U.S.C. § 102(b) as being anticipated by von der Heide.

Additionally, the Examiner has rejected claims 3, 4, 6, and 7 under 35 U.S.C. §103(a) as being unpatentable over Pitavy et al. (United States patent no. 4,764,322) in view of any one of Pivar (United States patent no. 3,825,395), Lin (United States patent no. 4,695,244), Mankowich et al. (United States patent no. 3,347,971), and von der Heide (United States patent no. 3,683,062).

ARGUMENT

Claims 3, 4, 6, and 7

35 U.S.C. § 102

The Examiner, in his Office Action mailed on June 7, 2004, has declared, in pertinent part:

> The amendment filed 07 January 2004 is objected to under 35 U.S.C. 132 because it introduces new matter into the disclosure. 35 U.S.C. 132 states that no amendment shall introduce new matter into the disclosure of the invention. The added material which is not supported by the original disclosure is as follows: the amendment to the paragraph which begins on line 8 of page 8 introduces new matter into the specification, since the original specification **does not describe** rotation about a third axis being provided by a motor which is attached "to table 19: for providing rotary motion to "the supports which hold the shaft 2 to table 19". Note that the original specification described rotation about the third axis as being supplied only by a motor that provides rotary motion to the supporting bars 20.

Manual of Patent Examining Procedure (MPEP) § 608.04 states, in pertinent part, "In establishing a disclosure, applicant may rely not only on the specification and drawing as filed but also on the original claims if their content justifies it. See MPEP § 608.01(l).

MPEP § 608.01(l) further clarifies:

> Where subject matter not shown in the drawing or described in the description is claimed in the application as filed, and such original claim itself constitutes a clear disclosure of this subject matter, then the claim should be treated on its merits, and requirement made to amend the drawing and description to show this subject matter. The claim should not be attacked either by objection or rejection because this subject matter is lacking in the drawing and description. It is the drawing and description that are defective, not the claim.
>
> It is, of course, to be understood that this disclosure in the claim must be sufficiently specific and detailed to support the necessary amendment of the drawing and description.

And MPEP § 2163.04, in pertinent part, provides:

> The inquiry into whether the description requirement is met must be determined on a case-by-case basis and is a question of fact. *In re Wertheim*, 541 F.2d 257, 262, 191 USPQ 90, 96 (CCPA 1976). A description as filed is presumed to be adequate, unless or until sufficient evidence or reasoning to the contrary has been presented by the examiner to rebut the presumption. See, e.g., *In re Marzocchi*, 439 F.2d 220, 224, 169 USPQ 367, 370 (CCPA 1971). The examiner, therefore, must have a reasonable basis to challenge the adequacy of the written description. The examiner has the initial burden of presenting by a preponderance of evidence why a person skilled in the art would not recognize in an applicant's disclosure a description of the invention defined by the claims. *Wertheim*, 541 F.2d at 263, 191 USPQ at 97.

. . .

In rejecting a claim, the examiner must set forth express findings of fact which support the lack of written description conclusion . . . .

The amendment in question declared:

Please, replace the paragraph which begins on line 8 of page 8 with the following amended paragraph:

Rotation about a third substantially orthogonal (to both the first axis and the second axis) axis, the yaw axis in the preceding examples, could be accomplished simply by attaching to table **19** a motor that provides rotary motion to the supports which hold the shaft **2** to table **19**~~supporting bars **20**~~.

And the Remarks section of the Amendment explained:

On page 8 of the application, Applicant indicated the device could rotate "about a third substantially orthogonal (to both the first axis and the second axis) axis . . . ." Inadvertently, Applicant gave an example of a way of accomplishing this goal where a motor to rotate the supports for the shaft was stated to be on the supporting bars **20** when viewing the drawings shows that it should be on the table **19** in order for the third axis always to remain orthogonal to the first and second axes. An appropriate correction has, therefore, been made.

Appellant respectfully submits that the drawings and the original disclosure clarified for one of ordinary skill in the art that the appropriate structure is as indicated in the amendment.

Furthermore, the original and amended claims clearly include and included "a means for rotating said shaft about a third axis that is substantially orthogonal both to the first axis and to the second axis." Appellant respectfully suggests, that this claim language considered by one of ordinary skill in the art in conjunction with the drawings, would have caused such a person to realize—knowing the claim language—that the original Application included "a motor that provides rotary motion to the supports which hold the shaft **2** to the table **19**."

MPEP § 2163.06 expressly provides:

The claims as filed in the original specification are part of the disclosure and therefore, if an application as originally filed contains a claim disclosing

> material not disclosed in the remainder of the specification, the applicant may amend the specification to include the claimed subject matter. *In re Benno*, 768 F.2d 1340, 226 USPQ 683 (Fed. Cir. 1985). Form Paragraph 7.44 may be used where originally claimed subject matter lacks proper antecedent basis in the specification.

Furthermore, since MPEP § 2163.03 provides, "An amendment to the specification . . . may indirectly affect a claim even through no actual amendment is made to the claim"; and since MPEP § 2163.06 indicates, "If both the claims and specification contain new matter either directly or indirectly, and there has been both a rejection and objection by the examiner, the issue becomes appealable and should not be decided by petition," Appellant respectfully believes that this aspect of the rejection is reviewable by the Board on appeal.

Considering now the heart of the rejection base upon 35 U.S.C. § 102, the Examiner has rejected claims 3, 4, 6, and 7 as being anticipated by von der Heide (United States patent no. 3,683,062).

Applicant respectfully observes that, although the axes of the device in von der Heide that produce rotation in the direction of the arrows 110 and 111 will always be orthogonal to one another, the axis that produces the rotation shown in FIG. 9 in a clockwise direction, will not always be orthogonal to the axis that produces the rotation in the direction of arrow 110. In fact, rotation in the direction of arrow 111 will sometimes cause the axis that produces the rotation in the direction of arrow 110 to be parallel to the axis that produces the rotation shown in FIG. 9 in a clockwise direction.

And in the present application, claims 3, 4, 6, and 7 require "rotating said shaft about a third axis that is substantially orthogonal both to the first axis and to the second axis."

Therefore, Applicant respectfully submits that von der Heide does not anticipate claims 3, 4, 6, and 7, which require a third axis that is substantially orthogonal both to the first axis and to the second axis.

MPEP § 2131 relevantly provides, in pertinent part:

> "A claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference." *Verdegall Bros. V. Union Oil Co. of California*, 814 F.2d 628, 631, 2 USPQ2d 1051, 1053 (Fed. Cir. 1987). "The identical invention must be shown in as complete detail as is contained in the ... claim." *Richardson v. Suzuki Motor Co.*, 868 F.2d 1226, 1239, 9 USPQ2d 1913, 1920 (Fed. Cir. 1989). The elements must be arranged as required by the claim, but this is not an *ipsissimis verbis*, i.e., identity of terminology is not required. *In re Bond*, 910 F.2d 831, 15 USPQ2d 1566 (Fed. Cir. 1990).

35 U.S.C. § 103

The Examiner has also rejected claims 3, 4, 6, and 7 under 35 U.S.C. 103(a) as being unpatentable over Pitavy et al. (United States patent no. 4,764,322) in view of any one of several other patents, stating that Pitavy et al. "disclose a rotational molding apparatus wherein a mold is rotated about three mutually orthogonal x, y and z" axes.

Applicant, however, respectfully believes that in Pitavy et al., although the y and z axes will always be orthogonal to one another and the x and y axes will always be orthogonal to one another, rotation about the y axis will cause the x axis not to be orthogonal with respect to the z axis and, at times, even parallel to the z.

Consequently, Applicant respectfully suggests that no matter with what Pitavy et al. is combined, the combination will not create the device of the present claims 3, 4, 6, and 7, which require a third axis that is substantially orthogonal both to the first axis and to the second axis.

CLAIMS APPENDIX

3. A machine for manufacturing a capital for an architectural column, which comprises:

a shaft;

a means for rotating said shaft about a first axis, wherein said shaft extends substantially symmetrically about a point of rotation for the first axis;

a means for rotating said shaft about a second axis that is substantially orthogonal to said first axis;

a means for rotating said shaft about a third axis that is substantially orthogonal both to the first axis and to the second axis; and

a releasable connector attached to said shaft for connecting a mold to said shaft.

4. The machine for manufacturing a capital for an architectural column as recited in claim 3, wherein:

the first axis is the pitch axis, the second axis is the roll axis, and the third axis is the yaw axis.

6. A machine for manufacturing a capital for an architectural column, which comprises:

a shaft;

a means for rotating said shaft about a first axis;

a means for rotating said shaft about a second axis that is substantially orthogonal to said first axis;

a means for rotating said shaft about a third axis that is substantially orthogonal both to the first axis and to the second axis; and

a releasable connector attached to said shaft for connecting a mold to said shaft.

7. The machine for manufacturing a capital for an architectural column as recited in claim 6, wherein:

the first axis is the pitch axis, the second axis is the roll axis, and the third axis is the yaw axis.

DATED this 7th day of March, 2005.

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